

64,600-078  
890099

What Is Claimed Is:

1. A wide viewing angle fringe field multi-domain aligned LCD panel comprising:

a first light-transmissive substrate;

an electrically conductive layer coated on an inside surface of said first light-transmissive substrate forming a first electrode, said layer being substantially optically transparent;

a second light-transmissive substrate;

an electrically conductive grid of horizontal and vertical bars coated on an inside surface of said second light-transmissive substrate forming a second electrode;

a cavity formed between said two inside surfaces of said first and second light-transmissive substrates and a peripheral seal when said two substrates are positioned juxtaposed to each other in a spaced-apart relationship; and

a liquid crystal material filling said cavity.

2. A wide viewing angle fringe field multi-domain aligned LCD panel according to claim 1, wherein said electrically conductive grid being formed of an electrically conductive metal.

64,600-078  
890099

3. A wide viewing angle fringe field multi-domain aligned LCD panel according to claim 1, wherein said electrically conductive grid being formed of Cr, Mo or MoCr.

4. A wide viewing angle fringe field multi-domain aligned LCD panel according to claim 1, wherein said electrically conductive grid being formed of indium-tin-oxide (ITO).

5. A wide viewing angle fringe field multi-domain aligned LCD panel according to claim 1, wherein said electrically conductive grid being formed of an optically transparent electrode material.

6. A wide viewing angle fringe field multi-domain aligned LCD panel according to claim 1, wherein said liquid crystal material having molecules that are vertically aligned.

7. A wide viewing angle fringe field multi-domain aligned LCD panel according to claim 1, wherein said liquid crystal material having a negative dielectric anisotropy.

64,600-078  
890099

8. A wide viewing angle fringe field multi-domain aligned LCD panel according to claim 1, wherein said liquid crystal material having a positive dielectric anisotropy.

9. A wide viewing angle fringe field multi-domain aligned LCD panel comprising:

a first light-transmissive substrate;

a first electrically conductive grid of horizontal and vertical bars coated on an inside surface of said first light-transmissive substrate forming a first electrode;

a second light-transmissive substrate;

a second electrically conductive grid of horizontal and vertical bars coated on an inside surface of said second light-transmissive substrate forming a second electrode;

a cavity formed between said two inside surfaces of said first and second light-transmissive substrates and a peripheral seal when said two substrates are positioned juxtaposed to each other in a spaced-apart relationship; and

a liquid crystal having a negative dielectric anisotropy filling said cavity.

64,600-078  
890099

10. A wide viewing angle fringe field multi-domain aligned LCD panel according to claim 9, wherein said first and second electrically conductive grids being formed of an electrically conductive metal.

11. A wide viewing angle fringe field multi-domain aligned LCD panel according to claim 9, wherein said first and second electrically conductive grids being formed of an optically transparent electrode material.

12. A wide viewing angle fringe field multi-domain aligned LCD panel according to claim 9, wherein said first electrically conductive grid being formed of metal and said second electrically conductive grid being formed of an optically transparent electrode material.

13. A wide viewing angle fringe field multi-domain aligned LCD panel according to claim 9, wherein said first and second electrically conductive grids being formed of horizontal and vertical bars each having a width between 2  $\mu\text{m}$  and about 20  $\mu\text{m}$ , and a distance between bars between about 10  $\mu\text{m}$  and about 50  $\mu\text{m}$ .

64,600-078  
890099

14. A wide viewing angle fringe field multi-domain aligned LCD panel according to claim 9, wherein said first and second electrically conductive grids being formed of horizontal and vertical bars each having a width/pitch ratio between about 1/10 and about 1.

15. A method for fabricating a wide viewing angle fringe field multi-domain aligned LCD panel comprising the steps of:

providing a first light-transmissive substrate;

coating an electrically conductive layer on an inside surface of said first light-transmissive substrate forming a first electrode, said layer being substantially optically transparent;

providing a second light-transmissive substrate;

coating an electrically conductive grid of horizontal and vertical bars on an inside surface of said second light-transmissive substrate forming a second electrode;

forming a cavity between said two inside surfaces of said first and second light-transmissive substrates and a peripheral seal by positioning said two substrates juxtaposed to each other in a spaced-apart relationship; and

filling a liquid crystal material into said cavity.

64,600-078  
890099

16. A method for fabricating a wide viewing angle fringe field multi-domain aligned LCD panel according to claim 15 further comprising the step of forming said electrically conductive grid in an electrically conductive metal.

17. A method for fabricating a wide viewing angle fringe field multi-domain aligned LCD panel according to claim 15 further comprising the step of forming said electrically conductive grid in Cr, Mo or MoCr.

18. A method for fabricating a wide viewing angle fringe field multi-domain aligned LCD panel according to claim 15 further comprising the step of forming said electrically conductive grid in indium-tin-oxide (ITO).

19. A method for fabricating a wide viewing angle fringe field multi-domain aligned LCD panel according to claim 15 further comprising the steps of coating said electrically conductive layer in a grid of horizontal and vertical bars formed of metal, and filling said liquid crystal material having a negative dielectric anisotropy into said cavity.

TOP SECRET - SECURITY INFORMATION

64,600-078  
890099

20. A method for fabricating a wide viewing angle fringe field multi-domain aligned LCD panel according to claim 15 further comprising the step of filling said liquid crystal material that is vertically aligned into said cavity.

40037347.20099